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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,418	01/10/2002	Cynthia A. Henson	960296.97486	9063

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EXAMINER

RAO, MANJUNATH N

ART UNIT	PAPER NUMBER
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1652

DATE MAILED: 04/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/043,418	HENSON ET AL.	
	Examiner	Art Unit	
	Manjunath N. Rao, Ph.D.	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-9 is/are pending in the application.
- 4a) Of the above claim(s) 2-5, 8 and 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-5, 7-9 are currently pending and are present for examination. Claims 1, 7 are now under consideration. Claims 2-5, 8-9 remain withdrawn from consideration as being drawn to non-elected invention.

Applicants' amendments and arguments filed on 2-6-04, have been fully considered and are deemed to be persuasive to overcome the rejections previously applied. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. Specifically Examiner has withdrawn the rejections under 35 U.S.C. § 112, 2nd paragraph in view of claim amendments and arguments put forward by the applicants. Examiner has withdrawn the rejection of claim 6 under 35 U.S.C. § 102(b) in view of cancellation of claim 6. Examiner has withdrawn the rejection of claim 1 under 35 U.S.C. § 103(a) in view of the arguments presented by the applicants.

Sequence Compliance

Applicant is required to comply with the sequence rules by inserting the sequence identification numbers of all sequences recited within the claims and/or specification. It is particularly noted that amended claim 1 recites a four amino acid sequence without a specific SEQ ID NO. See particularly 37 CFR 1.821(d).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 7 recites the phrase, for example, "deleting an aspartate *from* residue 105" in several instances. It is not clear to the Examiner as to how an aspartate can be deleted from a residue as aspartate by itself is a residue. It appears that applicants meant to recite "deletion of the aspartate *at position* 105" and so on for other amino acid changes at other positions. If this is so amending the above phrase and such similar phrases in claim 7 would overcome the above rejection.

In response to the previous Office action, applicants have amended the claim. However such an amendment has not completely removed the deficiency recited above by the Examiner. Furthermore, claim 7 continues to recite the phrase "removing an aspartate at residue 101" in line 6. Correction is required.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 recites an amendment "threonine residue found in the wild type sequence in the motif

Val-Asn-Phe-Thr". However, a perusal of the specification indicates that applicants have no support for the above identified phrase which now constitutes a "new matter". Therefore claim 1 is rejected for introducing "new matter" into the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claim 7 is rejected under 35 U.S.C. 102(a) as being anticipated by Frandsen et al. (Plant Physiol., 2000, Vol. 123:275-282). This rejection is based upon the public availability of a printed publication. Claim 7 of the instant application is drawn to a modified α -glucosidase, wherein the modified form differs from wild-type barley α -glucosidase by at least one substitution or deletion, such that the modified enzyme retains enzymatic activity at a higher temperature than wild type enzyme, wherein the deletion is selected from a group consisting of for example removing aspartate at position 105, position 508 or position 764. Frandsen et al. disclose such a modified α -glucosidase wherein at least the aspartates at positions 105, 508 and 764 have been removed. The enzyme disclosed by Frandsen et al. does not have aspartate at positions 105, 508 or 764. The reference does not explicitly disclose that the enzyme retains activity at a higher temperature than the wild type enzyme that applicants are referring to. However, since the modifications are exactly the same as claimed, Examiner takes the position that the enzyme inherently has thermostability and is capable of retaining its activity at a higher

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temperature than the wild type that applicants are referring to. Thus Frandsen et al. anticipate claim 7 of this application as written.

Since the Office does not have the facilities for examining and comparing applicants' protein with the protein of the prior art (for thermostable characteristic), the burden is on the applicant to show a novel or unobvious difference between the claimed product and the product of the prior art (i.e., that the protein of the prior art does not possess the same material structural and functional characteristics of the claimed protein). See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *In re Fitzgerald et al.*, 205 USPQ 594.

In response to the previous Office action, applicants have traversed the above rejection and argue over various lines. Applicants argue that while the protein reported in the reference is very similar to that of Skadsen et al., the source of the differences between (which encompasses the modifications claimed in the instant application) them is not known and they speculate the reasons without providing any scientific evidence. Applicants argue that the reference protein is an unmodified protein and that the modifications claimed are not found in the reference proteins. Applicants attempt to argue that the absence of certain amino acid residues at specific position is due to reasons other than modification and therefore the reference does not anticipate. Examiner respectfully disagrees with such an argument. Applicants are actually claiming a product derived by a process (i.e., modification). Such a product claimed due to its derivation by a process does not render the product novel. In the instant case, the product disclosed in the reference is also a product by a process, wherein the process is recombination and the disclosed product made by that process inherently has the same properties as that of the claimed product. A product claimed by a "product by process" claim is not rendered novel just because it is made by a

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different process. The process by which the product has been made does not carry any patentably weight. Therefore, contrary to applicant's argument, the reference of Frandsen et al. indeed anticipates claim 7 as written. Hence the above rejection is maintained.

Conclusion

None of the claims are allowable.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manjunath Rao whose telephone number is (703) 306-5681. The Examiner can normally be reached on M-F from 7:30 a.m. to 4:00 p.m. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, P.Achutamurthy, can be

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reached on (703) 308-3804. The fax number for Official Papers to Technology Center 1600 is (703) 305-3014. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.


MANJUNATH RAO
PATENT EXAMINER

Manjunath N. Rao Ph.D.
Patent Examiner, A.U. 1652
4/21/04